



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,970	07/21/2003	Ulysses Gilchrist	390-011009-US (101)	5343
2512 PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824	7590 06/07/2007		EXAMINER LOWE, MICHAEL S	
			ART UNIT 3652	PAPER NUMBER
			MAIL DATE 06/07/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/623,970		GILCHRIST ET AL.	
	Examiner		Art Unit	
	M. Scott Lowe		3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-11,13-17,19,20,22 and 24-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-11,13-17,19,20,22,24-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,7-10,13, are rejected under 35 U.S.C. 102(b) as being anticipated by Mages (US 5,772,386).

Re claims 1, Mages teaches a substrate processing apparatus having a station for loading and unloading substrates from the apparatus, the station comprising: an aperture closure 12,87 for sealing a loading and unloading aperture of the station; apparatus (figures 1,4-8,etc.) for removing a door 15 of a substrate magazine 6,46 and thus opening the substrate magazine 6 and for operating the aperture closure 12 to open the aperture; and an elevator 5,56 for precisely positioning the open substrate magazine 6 along a vertical axis within a usable range of motion.

Mages teaches a buffer transport 5,7,53,54,55 for positioning one or more substrate magazines 6 along a second axis (various) oriented in a second direction (various).

Mages teaches (figures 10,11) a shuttle 5,7,53,54,55 for transporting the one or more magazines 6 along a third axis (various) oriented in a third direction (various) different from the first and second directions and wherein the buffer transport is operative for moving the substrate magazine between a first position and a second

Art Unit: 3652

position, wherein when in the first position the substrate magazine communicates with the aperture, and when in the second position the substrate magazine is offset from the first position and is buffered, and wherein the first and second positions are horizontally coplanar.

Re claim 2, Mages teaches the elevator 5 operates such that a substrate within the open magazine 6 is positioned substantially in a wafer transport plane 10, the substrate processing apparatus further comprising a transport apparatus 22 for accessing the substrate in the wafer transport plane 10 through the aperture.

Re claim 3, Mages teaches the elevator 5 includes a device 5,11 for positioning the open substrate magazine 6 such that substantially no vertical movement is required by the transport apparatus.

Re claim 4, Mages teaches the first and second positions substantially coplanar with a plane that includes the second axis.

Re claim 5, Mages teaches at least one peripheral area and a central area (see figures, inherent also).

Re claim 7, Mages teaches the buffer transport 5,7 is operable to place the one or more magazines 6 in the at least one peripheral area (not numbered) and the central area (not numbered).

Re claim 8, Mages teaches the elevator 5 is operable to move the one or more magazines 6 placed in the central area.

Re claim 9, Mages teaches the station further comprises a sensor 21 for mapping vertical locations of the substrates.

Re claim 10, Mages teaches the sensor 21 is mounted to a frame (not numbered) of the station and capable of mapping the vertical location while the elevator is precisely positioning the open substrate magazine along the vertical axis.

Re claim 13, Mages teaches a mini-environment (not numbered, see figure 1, etc.) for interfacing the station to the substrate processing apparatus.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mages (US 5,772,386).

Re claim 11, Mages teaches the sensor 21 but is silent as to its mounting. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the sensor mounted in any equivalent known fashion and to any pad of the device as long as it still could perform its function for aesthetic reasons. Furthermore, on page 14, lines 17-19, applicant supports this rejection by stating "sensor 245 may be mounted in any orientation at any location so long as sensor 245 is capable of scanning substrates present inside magazine".

Art Unit: 3652

Claims 11, 14-17, 19-20, 22, 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mages (US 5,772,386) in view of Gordon (US 6,013,920).

Re claims 11, 14, 24, 16, Mages teaches a substrate processing apparatus having a station for loading and unloading substrates from the apparatus, the station comprising:

an aperture closure 12 for sealing a loading and unloading aperture of the station;

apparatus (figures 1, 4-8) for removing a door 15 of a substrate magazine 6 and thus opening the substrate magazine 6 and for operating the aperture closure 12 to open the aperture; and

an elevator 5 for precisely positioning the open substrate magazine 6 along a vertical axis within a usable range of motion.

Mages teaches a sensor 21, that is also an encoder, mounted on the elevator 5 (through 3) for providing elevator vertical position information.

Mages teaches the sensor 21 but is silent as to its mounting. Gordon teaches a sensor 86, mounted to the magazine door drive 42 (48) for easily mapping vertical locations of the substrates (column 5, line 62 to column 6, line 9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the sensor mounted to the magazine door drive 42 (48) for mapping vertical locations of the substrates or for aesthetic reasons.

Mages teaches a magazine door drive 12, 32 (or 94) but does not state explicitly the type of drive 32 other than it is a cylinder. Columns 6-7 Mages states that suitable drives or cylinders for moving doors and other items are pneumatic fluidic drives.

Art Unit: 3652

Furthermore, cylinder drives are usually fluidic drives. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the drive be any known drive, such a fluidic pneumatic drive, in order to save the expense of developing a new type of drive and also to have all the drives to be of the same type for ease of maintenance.

Re claim 15, Mages as modified by Gordon teaches a through-beam sensor.

Re claims 17,20, Mages teaches the sensor 21 is mounted to a frame (not numbered) of the station and capable of mapping the vertical location while the elevator is precisely positioning the open substrate magazine along the vertical axis.

Re claim 19, Mages teaches the substrate locations are determined by recording the elevator vertical position information when the sensor 21 detects an individual substrate.

Re claims 22, Mages teaches the substrate locations are determined by processing the magazine door drive position information when the sensor 21 detects an individual substrate.

Re claim 25, Mages teaches a substrate buffer for temporary substrate storage.

Re claim 26, Mages teaches at least one peripheral area and a central area (see figures, inherent also).

Re claim 27, Mages teaches the buffer transport 5,7 is operable to place the one or more magazines 6 in the at least one peripheral area (not numbered) and the central area (not numbered).

Re claim 28, Mages teaches a mini-environment (not numbered, see figure 1, etc.) for interfacing the station to the substrate processing apparatus.

Conclusion

Applicant's arguments filed 4/2/07 have been fully considered but they are not persuasive.

Applicant argued that Mages does not teach the containers buffered or horizontally coplanar. However, figures 10 & 11 show the containers horizontally coplanar and as shown in the attached definition of "buffer", Mages has buffered containers.

Applicant argued that the aperture of Mages is different than that of applicant's claim 1 but does not point out which claim limitations it does not teach.

Applicant argued that Mages does not teach central and peripheral locations for the containers. As stated in the previous office action, these features are shown in the figures (such as figure 11). Furthermore, the limitations are broad and it is not stated in the claims relative to what the locations are "central" and "peripheral" to. Certainly, none of the locations are central to the overall apparatus of the applicant.

Applicant argued that Mages does not teach the sensor mounted as claimed and it would not be obvious to combine the references to get the claimed invention.

However, as stated in the rejection it would have been obvious to one of ordinary skill to mount the sensor in any location as long as it performs its function. Applicant's own specification supports this by stating "sensor 245 may be mounted in any orientation at

Art Unit: 3652

any location so long as sensor 245 is capable of scanning substrates present inside magazine". Gordon shows it is known to rotatably mount the sensor on the frame and extending the sensor into the FOUP. Mages teaches the sensor (and encoder). Furthermore, Gordon and Mages share a common classification in both class and subclass and are thus of common interest for combination.

Applicant argued that Mages does not have an encoder on the lifting cylinders. However, this is not a limitation of the claims.

Applicant argued that Mages does not have an encoder. However, as stated the attached definition of an encoder, Mages' sensor 21 is an encoder.

Applicant argued that Gordon does not teach the sensor extending into the FOUP. However, Gordon states the sensors are in the FOUP in column 7, lines 42-45.

Applicant argued that neither Mages nor Gordon teaches a fluidic door drive and that it would not have been obvious to add one since Gordon has a lead screw drive and associated sensor. Gordon teaches placing the sensor on the door drive, but Mages teaches the sensor and fluidic drives.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 3652

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Scott Lowe whose telephone number is (571) 272-6929. The examiner can normally be reached on 6:30am-4:30pm M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on (571)272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

msl



PATRICK MACKEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600